The Universe of Ancient Tamil Education

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1. COMPLEX AND LARGE UNIVERSE

The Tamil country of the pre-imperial period contained a very highly cultured society with a bewildering number of symbols of civilization. It had a cosmopolitan society with at least three religions co-existing in harmony, a polity not inferior to that evolved in any other progressive region of the world, a trade that had an international coverage and a social life based on well-defined ideals and carried on by small compact communities with the least friction among themselves. The concepts of prosperity and good life had been fully developed; the idea of the division of social responsibility had also been wonderfully worked out. The family set-up left little to be desired.

Naturally, the universe of knowledge implied in these developments was large, and involved a large-scale effort at its conservation and further development. What modern education speaks of as the curriculum is nothing different from the current universe of knowledge.[1] The educational system intended to sustain the way of life of the people and the conservation of current values, including the so-called eternal verities, has necessarily to reflect the latest developments in knowledge. That system itself contributes substantially to such a development in the process of its functioning, and helps the improvement of the value-system of the society. The

curriculum becomes outmoded each time the value system improves and changes.

The universe of knowledge developed in the Tamil country during the period under reference may be analysed into aspects relating to the general training of the mind through its assimilation of a body of knowledge, purely abstract in nature, and aspects that had a relevance to the functioning of the large society, both in its practical side of just keeping the irreducible minimum of activities going on, and in regard to what made life spicy and worth living.[2]

2. THE LANGUAGES

The first place is to be provided to the languages which were the media of knowledge. There were at least two languages which were in use in the Tamil country—Tamil and Sanskrit, the first constituting the *lingua franca* of the country, and playing the major role, and the second almost limited to the Brahminical enclaves. Tamil had developed a rich heritage of literature of the highest standard. Sanskrit was brought in as a perfected language, with an equally rich literature including the scripture. The prevalence of Pali has only to be conjectured. A liberal education in Tamil in those days was a study of the available literature whose content was adequate intellectual material for a well-rounded personality.

3. OCCUPATIONAL EDUCATION

In regard to the next major aspect of the universe concerned with the art of "pulling one's weight in society", its knowledge was found in books written by specialists in each branch. This was supplemented by

what the teacher himself provided at the time of instruction. Occupational education which is what we relate to this second major aspect of the universe of knowledge had been perfected to the extent of its being pursued with a distinct philosophy and technique. A vast body of knowledge had developed in respect of each one of the occupations and crafts. As regards the broad categories of the occuptions themselves, there were:[3]

1. Occupations relating to the set up of the administration, for example, ministers, judges and officers.
2. Learned occupations—teaching, priestcraft, authorship of literery works, and expounding religious tenets, astrology, medicine, architecture and engineering.
3. Occupations calculated to promote joy and an aesthetic sense—entertainment and the arts.
4. Productive occupations and crafts.

4. THE INDISPENSABILITY OF TAMIL

A sound scholarship in Tamil was indispensable for every person in all the occupations. The textbooks in respect of each occupation were in Tamil whether they were originally written or adapted from Sanskritic sources.[4] These works were in highly literary, poetical form, obviously for the reason that poetry was more easy to memorise than prose. It is a pity that barring purely poetical works of a general nature, most of the works used as textbooks in professional courses are lost to us. It might be that as the teachers had themselves memorised many of these books the need to produce many copies of each of these never arose, as the production of a manuscript consumed

hundreds of man-hours and involved a lot of physical strain.[5]

Whatever the occupation, a good grounding in Tamil grammar and a good command of Tamil vocabulary were necessary to comprehend the textbooks in occupational courses. Therefore, some type of a general education in Tamil must have been completed by every individual before the commencement of occupational education.

5. THE THREE DIVISIONS OF TAMIL

Tamil literaure was divided into three parts, Iyal, Isai and Natakam.[6] The Iyal part included the textbooks in all branches of knowledge. The Isai part included books in music, and the Natakam part books in dance and drama. A distinction has to be made between a textbook in musicology and a book of songs. The first comes under the Iyal division and the second under the Isai division. Likewise, a book on the art and science of dramaturgy comes under the Iyal division, while a play (drama) comes under the Natakam division. On the basis of this division, it has to be said that all the works of this period extant are of the Iyal division only, though there is something of the Isai and Natakam element in a few works. In the *Silappadikaram* which is pre dominantly Iyal we have specimens of the other two also.[7] The *Paripadal* may be considered a combination of Iyal and Isai. The other works are purely of the Iyal type, i. e., subject-matter in poetry which should not be confused with music or songs.

6. THE SUBJECT-MATTER AND TEXTS

The subject-matter of the course in Tamil must have been mainly grammar until the emergence of

the didactic works.[8] One doubts if the current volume of floating poetry constituted a vital part of the course in Tamil, though it is certain that it was pressed into service in the elucidation of the grammatical rules. Each teacher had perhaps his own instructional notes with which he built up a school of interpretation in regard to the text. These schools must have persisted in the live traditions of the people until codified with suitable alterations and improvements into the later-day *Urai* or commentary.

After the emergenc of didactic works like those included in the anthology entitled *Padinenkilkanakku* regular instruction in these works might have been included in the course in Tamil.

Among the works likely to have been used as textbooks in the Tamil course are the *Naladiar*, the *Nanmanikkadigai*, the *Kar Narpadu*, the *Iniyadu Narpadu*, the *Inna Narpadu*, the *Tirukkural*, the *Palamoli Nanuru*, *Yeladi*. *Mudumolikkanci*, *Sirupancamulam* and *Innilai*.[9]

These are among the collection of eighteen minor works called *Padinenkilkanakku*. *Kilkanakku*, as the title implies, may have been intended for young students, or literally, students who were in the lower level of education.

The *Naladiar* is a collection of moral precepts by diverse hands. There is the tradition that 8,000 Jain ascetics who had been protected by the Pandyan king during a period of drought, showed their gratitude to their royal patron by each leaving in his place of residence a didactic verse in the Venba metre. The

king collected all the 8,000 leaves and tossed them into the Vaigai, which was then in floods, to test their worth. Four hundred of these leaves survived this test and they were picked up for being compiled into a collection of quatrains or *Naladiar*. This story is meaningful, if not trustworthy. In all probability, the *Naladiar* was a textbook compiled by Jain teachers for their own instructional use in their schools.[10]

The *Nanmanikkadigai*, a work by Vilambiyakahanar, is a book of maxims. It has an excellent translation in English by the Rev. Pope. Two of its stanzas are reproduced here, as a sample, from Pope's translation:

> " From the rock the radiant gem is born;
> From the dear one's speech, high joys are born;
> From gentle kindliness is virtuous action born;
> And everything from wealth is born."

> " Sweet words make men your own, harsh words
> Unpleasing, cause men's hearts to harshly blame
> A gentle word brings gracious thought to human hearts.
> By this the heaven that passes not is gained "

Kar Narpadu is a short poem by Kuttanar on clouds.[11] *Iniyadu Narpadu* is another short poem of forty stanzas by Putan Sendanar of Madurai on the subject of what is pleasant in life.[12] *Inna Narpadu* by Kapilar is a poem in 40 stanzas on the subject of what is painful in life. *Tirukadukam* by Nalladanar is yet another didactic work containing the directions for a virtuous life.[13] *Acarakkovai* by Peruviyan Mullaiyar is on the subject of physical and

mental hygiene.[14] *Palamoli Nanuru* is a book of proverbs, evidently a collection by Munrurai Araiyanar.[15] *Ciru Pancamulam* by Mamulanar is a book of wise sayings.[16] *Mudumolikanci* by Purisai Kilavanar is a book of maxims.[17] So is the *Yeladi* by Kani Medaviyar.[18] The *Kainnilai* of Poigaiyar is on the fourfold objectives of life (Aram, Porul, Inbam, and Vidu)[19]

These works are abstract and must have been used in the instruction of students having some background of fundamental education. There are a few other works supposedly of this period of time which could have been textbooks for children.[20] Their antiquity rests on no stronger evidence than tradition; but there is nothing to give the lie direct to such tradition.

Before the dawn of the Pallava age the number of textbooks might have increased and grammatical instruction might have constituted only one part of instructional material. Due to the non-availability of the names of works, likely to have been used as textbooks, we have to be content with making the inference that most of the textbooks were meant only for current instructional purposes and were prepared by the teachers themselves. With the passing away of the teachers, their textbooks too disappeared.

It is perhaps not farfetched to imagine that, at the highest level of Tamil education, philosophical themes were handled and Tamil versions of some of the Sanskrit works like the *Ramayana* and the *Mahabharatha* were systematically taught. The *Tirukkural* of Tiruvalluvar was probably intended

for the most advanced students in the set-up. of the liberal education pattern.[21] It was the scripture of the Tamils bearing on the fourfold objectives of life with the last objective being taken for granted for persons who have realised the other three as laid down by the *Marai* and hence not requiring separate treatment.

THE SCIENCES

1. MATHEMATICS EDUCATION

In its generic sense the term Kanakku meant education or knowledge.[22] Thus *Nedum Kanakku* and *Padinenkilkanakku* have reference to some aspects of knowledge.[23] Kanakkar meant the teacher; but either for the reason that mathematics had a very significant role in secular education with its wide application to a number of sciences and arts, or because the Tamils used the designation of the mathematics teacher synonymously with Asan informally, the term got more meaning than it should have normally conveyed. The science of mathematics must have had notable development in the Tamil country judged from the development of the other sciences that are founded on mathematics and need mathematical application, like architecture, engineering, astronomy and astrology. The arts like music, drawing, painting and sculpture also involve a lot of application of mathematical principles The two basic items of the curriculum, if we would so put it in modern sophisticated language, were language and mathematics. These two were figuratively the inner eyes of the learned. (*Ennum eluttum kan enat tahum*)[24] En referred to numbers; Eluttu referred to the written language though the literal meaning is 'something committed to writing.'

Evidences of the knowledge and application of numbers and fractions are found in every work of early Tamil literature. The concept of measurement had also developd vastly.[25] The measurement of time and distance and the calculation of the weights of different articles were based on a highly evolved notion of mathematical standards. Geometry also seems to have received considerable attention as a branch of mathematics. The incorporation of geometrical ideas in the realms of art and architecture would imply a geometrical science having developed as an ancillary to mathematics. The so called Arabic numerals had been anticipated in the Tamil country; and one would suspect that those numbers were themselves influenced by Tamil numerals.[26]

Quite a number of Tamil concepts were coined in the field of mathematics education in addition to the Sanskrit terms incorporated. Even those terms were Tamilised beautifully.

Out of the first ten numbers, excepting eight which has a sound close to the Sanskritic *Ashta*, all the other numbers are in pure Tamil words.

There were treatises on mathematics used as textbooks We have the names of some of them. The *En Suvadi* of today must have been a survival in some form of a textbook in ancient times. The reference to a *Ganita Nul* in early literature may be to an ancient work.[27] The name *En Nul* is also found in references. All this must be enough evidence of the growth of a science which helped considerably the development of a number of areas where its application contributed substantially to civilization and good life.

2, ASTRONOMY

Clear indications of astronomical education are available in the literature of the times. Astronomy is here distinguished from astrology, the science of prediction. The *Pura Nanuru* has plenty of references to astronomical knowledge.[23] We shall present a summary of the information gained from it as an evidence of the level attained by the Tamils in the pre-imperial period.

The shining objects in the sky were called *Min*. The stars were distinguished from the planets.[29] *Min* probably referred to the star, and the planets were called *Kol* corresponding to the Sanskritic *Griham*. No doubt there is a mixup because, in the list of the nine planets known to the Tamils, the sun and the moon have been included. But apart from this, it is remarkable that the ancients had knowledge of the planetary system. The term *Kol* is very well derived from *Kollutal* or receiving. The planets which received the sun's light got the appropriate name of *Kol*. The planets *Velli* and *Sevvai* must have been identified in reference to their colour and lustre, *Velli* synonymous with silvery white, and *Sevvai* with red. The *Puram* mentions *Arundati* as *Vada Min*.

The astronomical scientist was called Ganiyan as astronomy involved a lot of mathematical calcualtion.[30] "One who predicts all (astronomical) happenings"— this is the definition of the Gani found in a later day work.[31]

A few teachers of astronomy of the Sangam age could be identified by the Ganiyan prefix. The chief among them was Ganiyan Pungunranar.[32]

Another was Kudalur Kilar, one of the *Puram* hymnists.[33] He compressed a lot of astronomical information into the stray verse of his available. The fall of meteors presaged evil, and that belief continues even today in India among large sections of the people, though scientifically considered absurd.

The Indian calendar had been perfected by this time, and the Tamil country had adapted it, introducing, in many instances. its own concepts coined in Tamil. The twelve months of the year—Cittirai to Panguni. the seven days of the week—Tingal to Nyayiru, the two broad divisions of each day as Pahal (day) and Iravu (night,) the division of each day into 60 Naligai (2½ Naligai being equal to one hour)—all these had become part of the Tamil calendar 2000 years ago. The twenty seven stars representing one lunar cycle (27.32 days) of the lunar month were identified by separate names taken from Sanskrit, and in some instances, suitably Tamilised.

One other custom known in the Tamil country of associating the birth stars of persons with their names may also indicate the spread of the astronomical science and its application to the daily life of the people. We have, for instance, the names of Avur Mulam Kilar and Aiyur Mulam Kilar (Avur and Aiyur of the Mulam star.)[34]

Some of the ancient works contain astronomical data in respect of major events, for instance, the burning of the city of Madurai by Kannaki. Scholars would be hesitant to accept these as dependable bases for their calculation of the chronology of historical events. But we are here concerned with the idea, symbolising a method of preserving vital historical events in the memory of the race.

It is perhaps too much to claim that the Tamil country evolved an astronomical science indepen-denly. Astronomy is the summation of a host of other sciences, and to claim that Indian astronomy was born in the Tamil country and spread elsewhere without evidences of the other related sciences also having developed independently to the extent of creating this new science, is to sacrifice the scientific approach to history at the altar of chauvinistic emotionalism.

3. ARCHITECTURE AND ENGINEERING

Until Kavirippumpattinam, Uraiyur and other cities of the ancient Tamils are excavated, and the design and architecture of these cities are laid bare, it is not possible to state even in general terms anything about the secular architecture or the town-planning of the period. But from the descriptions contained in various works and from the fame which these cities had attained in far off countries, there could be no doubt that the beauty of the architecture and town planning was the result of the perfect workmanship and the engineering skill of the workers.[35] The *Pattinappulai* seems to describe a modern city; and in the literature of the world not many descriptions of ancient cities have been so clear or exhaustive as the description of Puhar. That there were separate enclaves for foreigners must point to the cosmopolitan make-up of the population in the city. A large number of buildings on a colossal scale would seen to be mentioned in the work. The social amenities including recreational facilities provided in the city made it one of the few great cities of the then world. Uraiyur also must

have shared at least a few features and some of the grandeur of Puhar.[36]

The architects and engineers who planned these cities, their palaces and dwelling houses must have been experts with a background of the sciences of architecture and engineering developed in the Tamil country, possibly incorporating ideas from external sources. The Greeks and the Romans had contacts with the Tamil country, and their influence along with the influence of experts from other parts of India must have been brought to bear upon the development of a science of building whose triumphs were clearly visible in the great cities and buildings of those times.

The use of timber, particularly teak, iron, copper, gold and silver, had been perfected in the Tamil country much earlier than in many parts of the world. Timber was found in such abundance that after meeting the local requirements fully, it found its way to far-off countries as a profitable article of trade.[37] The expert worker in wood called the Taccar was the last word in the woodwork not only associated with the making of chariots and wooden articles and furniture but also with architecture and construction. The tradition has survived to a small extent today; and one has to look at some of the doorways in temples and large mansions in the Tamil country to be convinced that the tradition whose last flicker is being seen must have had its days of bedazzling glory. Even today, some of the Taccar belonging to ancient families of Taccar have their own books of reference in palm leaves.

It is not possible to say if iron was in large use in construction as the versatility of wood was proven

in the Tamil country to the extent of certain constructions being completed without even a small iron nail being used. But the use of iron was very well known and all the weapons of warfare involved the use of iron on a large scale. The word *Yehhu* (steel) standing for something approximating to steel must suggest a development in the use of iron culminating in the manufacture and utilization of steel.[38] The armour and the shield were light and effective against the sharpest weapons The sword whose lustre is often described specially must have been cast in high-quality iron. Therefore, there can be no disputing the knowledge of the use of iron. But the Taccar seem to have dominated in great constructions as engineers and architects. Their knowledge of mathematics was thorough. The training was sound, and it was had either in the family or from a master outside, depending on the circumstance of each Taccar.

There was a system of apprenticeship lasting for as long as 10 or 12 years, either under the father or under the master. All the details of the work were learnt by doing under the instruction and direction of the teacher, whoever it was.

Civil engineering had also attained a high watermark of perfection. Apart from the construction of cities and towns, quite a number of public works calculated to promote economic prosperity were undertaken. One of the first dams in the history of Indian engineering was constructed during this period under the orders of king Karikala.[39] It was a dam across the Kaviri, a forerunner of the present-day Mettur construction. It is still there with all the changes and improvements made over centuries—a testimony to the engineering skill found in the Tamil country seventeen or eighteen hundred years ago.

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Marine engineering education had also been developed to the extent of harbours like Puhar, and Tondi achieving international reputation, and what should have proved the seacastles among ships in those days plied between the Tamil coasts and those many thousands of miles away both in the East and the West. Some of the great master-builders of ships flourished in the Tamil country. The harbours were not just places for ships to cast anchor, but constituted huge establishments with sufficient personnel to handle all the problems of maritime operations.[40]

4. MEDICINE

Medical education under a system of Gurukula and apprentitceship was undoubtedly a very prominent aspect of the educational set-up during the period, and all the reputation of the later-day physicians should be attributed to their belonging to a great tradition that had commenced many centuries earlier. The science of Ayurveda is no doubt an all-India one in the sense that the ancient Ayurveda texts are found all over India in Tamil and Sanskrit. Most of these texts are patently of later-day origin in spite of misleading prefatory verses attributing them to Siva, Agastya or some other legendary luminary. But the Agastya tradition which has reference to the earliest period of Tamil literature mentions the Agastya of the Sangam fame as the father of Tamil medicine. Noi was the general name given to disease, and Marundu was the name given to medicine; and from this was derived Maruttuvan, the person practising medicine.[41] The exponent (or teacher) of medicine was called Maruttuva Nulon.

The existence of texts in medicine is testified to by the references both in the literature and their commentaries as also by the excerpts from such works themselves. Agastya and eighteen Siddhas are credited with having written dependable texts; on medicine, and some scholars even believe that some of them are extant.[42] There is mention of a great treatise called *Vakadam* by one Vakadacharya and the work was so exhaustive and authoritative that the term Vakadam itself began to have the meaning of medicine.[43]

Tamil poets with the Maruttva title prefixed to their names were either doctors or members of doctors' families taking to versifying as their hobby. We have the names of Maruttuvan Damodaranar and Maruttuvan Nallaccutanar.[44]

The medicine that developed in the Tamil country was mostly herbal. Herbal research must have been constantly going on to sustain the system of medicine. The stupendous work of research with all herbs, from trees, plants, grasses, roots and fungus can be understood from the hundreds of names of herbs mentioned in Ayurvedic works of a later day. That we have lost much of that great system today must be acknowledged from our inability to identify most of the herbs. May be, many of these names were professional coinages, and to take them literally and prescribe any Ayurvedic medicine is to ask for wanton risk to life.[45]

The science of diagnosis also seems to have developed to a noticeable extent. We have the names of many diseases as if from a system of classification Examples: Panjikkalayappun, . Midarruppasumpun

(inflammation of the throat), Pun Valalai Vaya Noi.[46]

The veterinary science had also notable development. There were doctors for treatment of animal diseases. It is to be expected that in a situation in which large numbers of elephants and horses were maintained for the defence of the country, there should have developed a class of expert veterinarians.

The practice of chanting Mantra in the curing of diseases was not popular during this period, and a disease was a disease and needed nothing less than diagnosis and direct remedy. In later times, with religion dominating life at every turn and in every detail, Mantra secured respectability with medicine, and sometimes Mantra was the last resort if medicines failed.

There are indications of knowledge of surgery; but it should be too much to imagine that the science of anatomy was so thoroughly mastered as to permit of such precise surgery as it is possible today. But superficial wounds or boils were easy of incision and surgical treatment, with the chances of sepsis always there, depending on the degree of cleanliness of the hands of the surgeon and the instruments used.

Attention was also paid to mental diseases. The mind-body unity was well understood, and the action of the one on the other was known. The way the children were brought up, the way the defeatist mentality and frustration were sought to be removed in those days would betoken awareness of mental hygiene to a very appreciable degree.

5. MILITARY TRAINING

Though fighting for the country's safety and integrity was everybody's duty, there was a class of hereditary fighters whose only occupation was the defence of the country. The Maravar of the Tamil country were perhaps a unique community of fighters for that distance of time because, the Rajputs and the Sikhs, very much associated with the occupation of fighting, were a later-day social development in Northern India.[47] It is not correct to import any concept of a standing army in its modern sense into the history of the ancient Tamil country. But the concept of the permanency of the army as an indispensable aspect of government had been evolved; and while in times of a major crisis each house contributed fighters in the defence of the country, a minimum number of warriors always stood guard. They played that role as a hereditary class of warriors. They were given tough and thorough training in the use of weapons and also in fighting with hands. There was certainly a scheme of military training intended for this community.

Princes were given systematic military training A code of conduct was prescribed in wars.

Therefore, military training was based on a philosophy in which wars were never to be occasions for vandalism and immoral and unchivalrous acts (Arattin mandiya marappor vendar). May be, a brief description of a battle will provide an insight into some of the conventions going with miliiary campaigns.

Just before the commencement of a campaign, the king summoned the warriors by the beat of the drum, and distributed the flowers of identification

functioning for the modern badges. Even in England the flower identification is known to have existed until the 14th and 15th centuries. The warriors were then assigned to the different commands. The different divisions, the elephantry, the cavalry and the infantry had to conform to the strategy already evolved. The overall command was vested in the king who led the army to the battle-field. After the victory had been won, the warriors were fed by the king at a special function. The king dined with the warriors on this occasion. He also distributed trophies and presents to the warriors. The wounded were given special attention by doctors; or if the injuries were not very serious, they were nursed by the women at home.

From the above, it should be clear that fighting in the Tamil country was not just a matter of some confused engagement taking place on an open ground and one of the fighting kings emerging victorious. It was certainly more scientific than many would have imagined; and systematic training was provided for all those involved in the occupation. The Tamil people used elephants in their wars; and even the elephantry of the North Indian rulers must have consisted of elephants from South India because, the only source of elephants for the North Indian kings was Assam which is really to the extreme east. It should never have been possible to find thousands of elephants from that centre for meeting the military needs of North Indian empires. One would suspect that South India was a more fertile producer of elephants than Assam which, incidentally, was the autonomous Kamarupa for many centuries getting merged into the politics of Northern India later. The hilly tracts of

Kerala had the reputation of being the home of mighty elephants.

The point here is that some of the best instructors in the branch of elephantry as a special army division were to be found in the Tamil country. The reference to *Yanai Nul* or the science of elephants suggests a highly developed system of training in the strategy of elephantry.[48] There were colonies and families of elephant-tamers, and also instructors in the strategies of the elephantry division.

The use of the horse in battle was equally prevalent, and the training of cavalries was also an integral aspect of military training. Horses were either used for riding or for the drawing of chariots.

The training in the art of of fighting was provided to the Maravas as hereditary education. Marava warriors occupied positions as commanders and instructors. The military establishment of each kingdom was as important as the civil establishment, and each kingdom had its own armoury. There were centres of manufacture of arms in which trained smiths and carpenters, and sometimes builders and even stone-workers, were employed. We are unable to assert that there were special military schools with any approximation to a modern military school in respect of organization and training. But the elaborate set-up of the military administration even during the Sangam age deepens the impression that Maravas took a leading part in the training of warriors and sound traditions had developed in this as in the other areas of administration.

THE FINE ARTS

1. MUSIC

Music was an integral part of Tamil life. As it was integrated with life itself, it got its name Isai, meaning *integrated*. Pattu and Sangitam were the other terms sometimes employed. Rarely the term Isai Pattu also referred to music.

Music was one of the three aspects of literature claiming equality of status with Iyal and Natakam. All these three were themselves not mutually exclusive. Natakam implied music, and Iyal itself was not free of the musical element. The simple pastoral music of the earliest Tamil folk developed into a complex musical system involving the use of the vocal apparatus, as well as a large number of musical instruments of which the Yal and the Kulal were the oldest and the sweetest in the sense of emotionally the most satisfying, next only to the pleasing *malalai* or the lisping of tiny infants.[49] There were vocal musicians whose well-cultured voice often reverberated in the large music halls, both private and public. There were musicians who played on different instruments and provided the most soul-elevating type of entertainment. Music was provided not only as a separate entertainment, but was a necessary ancillary to drama and dance.

Like painting, music had its soft side as well as its highly complex side. The soft mellifluous music, whether of the vocal variety or of the instrumental one, was the necessary part of the equipment of courtesans. The more complex type was handled by music professionals, male and female, teachers, and specialists in music.

The music of the pre-imperial age, of which we have some information, was the music of an admirably perfected system. The science of laya had developed alongside, as also the concept of ragam. Laya is implied by pure Tamil words like Isai Alavu and Isai Nirai. Talam or layam also came into currency about the end of the period.[50]

Music concerts were given in large halls specially erected with acoustic properties.[51] These halls were either a part of the royal palaces or separately constructed as a public amenity. Manram sometimes signified a place of meeting not only for transaction of public business, but also for recreational and educational purposes.[52] But the more appropriate term for a hall was Mandapam.[53] Kavirippumpattinam had a large number of Mandapams.[54] Madurai too boasted beautiful halls for the pursuit of intellectual activities.[55] Besides cities, smaller places also had centres of recreation and entertainment.

The above situation presupposes a perfected system of education in this great art. Luckily we have a fairly good picture of this education from *Silappadikaram*.[56] Other works like the *Paripadal* give interesting details.[57]

As observed earlier, music was indispensable to the courtesan. Naturally, the courtesans in each city and town took instruction in vocal or instrumental music from teachers in a Gurukula system. Male pupils bent on a musical career also entered the Gurukulas. Whether instruction was on a co-educational basis or whether boys and girls had separate teachers or separate classes can at best be

only guesses.[58] But it seems probable, judged from the phenomenal perfection which the art and its science had attained, that there were two classes of musicians; one specializing in the soft system, and the other one in the more intricate and complex system. The Gurukula system in music survived in the Tamil country until very recent times in its pristine purity; and the institutionalization of musical instruction which is now the vogue has in a sense sounded the death-knell of the Gurukula with whatever implications, good or bad, it might have over the quality of music.

So far as the science of music was concerned, it consisted of the song, its raga, its tala or timing and the manipulations possible within the bounds of the raga and the timing. It is interesting to note that there was the special word Niram for raga in pure Tamil. The commentator to the *Silappadikaram* has this derivation of the concept Niram or raga:

> "A painter who wishes to paint the red lotus along with the green leaves, first draws the outlines on white canvas. This outline is comparable to the sound of the song. Later the painter paints the different colours to complete the painting. The verbal filling in of the musical sound-outlines is the giving of the shades and hues to the painting. When language gets associated with sound within a scheme of timing, the colour or the raga becomes patent."[59]

Pan is another musical term which has reference to the actual exposition involving the physiological apparatus with due intonation, modulation and expository details. The physical apparatuses involved are the lungs, throat, tongue, nose, the upper part of the mouth, lips, teeth and head. The expository

details relating to modulations and intonation are: the commencement, the static stage, the fade out, the quiver, rounding off, intonation, vocal manipulation and the keeping of breath. When the musical piece is thus rendered, music is said to be *made*, and gets the appropriate name "that which is made" or Pan (from Pannutal).[60]

Vocal music was called Midarruppadal. Midaru meaning the throat. There were wind instruments on which also music was produced like the Kulal and stringed, like the Yal. The musical compositions were in one of the four types: Venba, Asiriyam, Kali and Vanji.[61]

The timing was taken care of by percussion instruments like the Tannumai, possibly the earliest ancestor of the Mridangam.[62]

Tradition speaks of 11991 original musical pieces.[63] What this means one cannot divine at this distance of time; but it is evidence enough to show the development of a great tradition of music. Quite a number of textbooks in music were produced and used by the teachers. The names of many of these are still preserved, while excerpts from a few books alone have survived. Among these texts were: *Perunarai*, *Perum kuruku*, *Isai nunukkam*, *Indrakaliyam*, *Pancamarabu* and *Bharata senapatiyam*.[64] None of these works mentioned in the commentaryof Adiyarkunallar for *Silappadikaram* is available. Fragments of a few of these works are to be found in illustrative quotations of later-day works. The *Kanal vari* of *Silappadikaram* is a chapter on the intricate techniques of Tamil music. Unfortunately the elaborate commentary for this part is lost, or

perhaps was never written.[65] It is by itself a small treatise on music which, with its many technical terms and minute references to the science, is still to make full sense to modern students of musicology whose foundation knowledge of the music of the ancient Tamils is far from adequate.[66]

There is one whole work entitled *Paripadal* providing a good insight into the Tamil music of ancient times. It is a book containing the praises of Vishnu, the Vaigai, Murugan and Madurai by diverse hands. It has a commentary by Parimel Alagar. It is considered a musical work. It has only 24 songs in its present form. But the original is believed to have contained 70 songs. The book must have been lost in parts even when Parimel Alagar took it up for his commenting.[67]

The authors of this book are: Asiriyan Nallanduvanar. Ilam Peru Valudiar, Kaduvan Ila Veyinyar, Karumpillai Butanar, Kirandaiyar, Kunram Butanar, Kesavanar, Nallaccutanar, Nallaluciyar, Nalleluniyar, Nalvaludiyar and Maiyodak Kovanar. It is evident that these were the great authorities of music at that period of time.[68]

In addition to these authorities, there were Kannanar, Kannanaganar, Nannaganar, Naganar, Pittamattar, Pettanaganar and Maruttuvan Nallaccutanar.[69]

The following table is based on the edition of *Paripadal* by Mahamahopadyaya Dr. U. V. Swaminatha Iyer (Tyagaraja Vilasa Publication, fourth edition, 1956).

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THE PARIPADAL SYSTEM OF MUSIC

S. No.	No of song	Commencement and dedication	Composer	Set to music by	Pan
1	1	Aiyiram viritta Vishnu	Not known	Not known	Not mentioned; but the following modes of singing are detailed: Taravu, Koccaham, Aragam, Asiriyam, Peren and Suritakam.
2	2	Ton murai iyarkaiyin - Vishnu	Kirandaiyar	Nannaganar	Palaiyal
3	3	Mayoye-Vishnu	Kaduvanila veyinar	Petta Naganar	,,
4	4	Aiyindirul Aranikki Vishnu	,,	,,	,,
5	5	Payirum panikkadal Murugan	,,	,,	,,
6	6	Niraikadanmuhandu Vaigai	Asiriyan Nallanduvanar	Maruttuvan Nallaccutanar	,,
7	7	Tiraiyirum panippauvam	Maiyodak Kovanar	Pittamattar	,,
8	8	Manmisaialvidulai Murugan	Asiriyan Nallanduvanar	Maruttuvan Nallaccutanar	,,
9	9	Irunilandulakamai Murugan	Kuntrambutanar	,,	,,
10	10	Malaivarai malai Vaigai	Karumpillaibuttanar	,,	,,

S. No.	No. of song	Commencement and dedication	Composer	Set to music by	Pan
11	11.	Virikadir madiya-modu Vishnu	Asiriyan Nallandu-vanar	Naganar	Palaiyal
12	12	Vali poruminnodu Vaigai	Nalvalu-diyar	Naganar	,,
13	13	Manivaraiyurnda Vishnu	Nallelu-niyar	Not known	Nodiram
14	14	Karmali kadalpeyal Murugan	Kesavanar	Kesavanar	,,
15	15	Pulavarai ariya Vishnu	Ilam Peru-valudiyar	Maruttu-van Nalla-ccutanar	,,
16	16	Karaiye kaivantonral Vaigai	Nallali-siyar	,,	,,
17	17	Tembadu malarkulai Murugan	,,	,,	,,
18	18	Por yedirnderrar Murugan	Kunram butanar	,,	Gandha-ram
19	19	Nilavarai aluvattan Murugan	Nappanna-nar	,,	,,
20	20	Kadal kurai padutta-nir Vaigai	Asiriyan Nallandu-vanar	,,	,,
21	21	Urndatai yeripurai Murugan	Nallaccu-tanar	Kanna-ganar	,,
22	22	Oliruvatpporuppan Vaigai	Not known	Not known	Not known

The above table may be mystifying to the extent that the *Pans* cannot be identified in terms of the later-day musical system of the Tamil country. But certain interesting generalizations are possible with

reference to the table. There was perfect collaboration between the language expert and the music expert. The language expert, evidently under the guidance of the music expert, composed the song no doubt not sacrificing language and meaning at the altar of mere musical effect. The music expert without doing damage to the composition, set it to the appropriate Pan. One is reminded of the present day collaboration between the composer and the musical director in films.

Among the names of the musicologists is that of a member of the medical profession. There seems to have been no antagonism between medicine and music. One of the names has the Asiriyan prefix, an indication that he was a teacher. Only in one instance do we have the composer himself proving an expert in the science of music as well.

From the technical terms employed in the musical science, one further evidence is available of the natural fusion of the musical tradition that had developed in the Tamil country independently and the North Indian music that had found its way into the South. The arts are never the subject-matter of proselytism. They are the most welcome subject of ready assismilation. The Tamil country had a comparatively quiet political atmosphere with eager patrons belonging to the royalty and the aristocracy with a perception of the aesthetic values of life. No wonder that their patronage was sought by foreign minstrels. Gandharam, the name given to one of the Pans would suggest the Gandhara country which had a reputation for fine arts like music and sculpture.[70] The names of some of the Pans of the early period

and ragas of the later period would seem to indicate the places of their origin. Thus the Malava raga would refer to Malwa, Kambodi to Cambodia, and Sindhu Bairavi to the region of Indus.[71] Musical ideas from different parts of India coalesced into the Tamil musical system, losing their separate identity. The Tamil music which showed a high degree of development during the Sangam period was the nucleus of the present day Karnatic music, and prospered under the name of Tamil music so long as there was no pronounced theocratic element and denominational bias in the government. Tamil kings of the Sangam age could be hardly beaten for their catholicity of outlook. Not so, the later Pallava, Cola or Pandya rulers. The Pallavas were no fanatics; but each Pallava king distinguished himself by his patronage of a favourite religion or denomination. The later Colas, in spite of their enlightened approach to issues like religion affecting the people intimately, limited their whole-hearted patronage to Saivism; and instances are not lacking where there was persecution of other sects, the classical one being that of Sri Ramanuja, the greatest name in Sri Vaishnavite history, who had to seek asylum in the Mysore country after having been victim to aggressive persecution. The poetry and the music of the period posterior to the Sangam age were mostly devotional, denominational and related to a basic system of philosophy. The *Tevaram* and the *Prabandam* hymns do not partake of that free uninhibited character of the pre-Pallava poetry and music, in which while religion is not eschewed, there is comparatively less of the spiritual outpouring characterising the *Tevaram* and *Prabandam* hymns. The poets and musical composers

of the early period, emphasized the reality of worldly life while not ignoring the life beyond. Nature, including human nature, appealed to them as much as gods. Hence we find the Vaigai receiving equal attention with Vishnu. When music tended to become the monopoly of religion in the Pallava and Cola epochs, the freedom that composers enjoyed in the choice of subject-matter was no longer possible. As a result, the music of the pre-imperial age became easily distinguishable by the *motifs* of the period. There is no doubt that the later devotional lyrics were built upon the musical heritage of the Sangam age, and a common musical system developed for the whole of the area comprised in Andhra, Karnataka and Kerala countries. When the music was once again handed to the Tamils for refinement and development, it was purely devotional, and had features given to it by the musical scientists of Andhra and Karnataka. It had also the many distinguishable traces of its early Tamil features. Many ragas retained their original names. The Tamil musical instruments, particularly the percussion instruments, constituted a link with the old Tamil tradition. As these instruments were mostly made of the skin of animals, later day religious susceptibilities were deeply affected by the soul-stirring devotional music being subordinated to the timing provided by an instrument made of animal skin. Therefore, the Tannumai was substituted by a percussion instrument made of metal, and given the name Suddha Maddalam. The old Tannumai, however, continued to be in use; and today it has stabilized itself as an indispensable accompaniment in music entertainments. The Suddha Maddalam has become rare, and can be found only

in temples that continue *all* the details in the tradition of worship.[72]

Tamil literature frequently mentions the tribe of the Nagas, and one would suspect that these Nagas were talented and had a system of music with which they enriched Tamil music. While the Yal, from its name, seems to be a hundred percent Tamil product, the Nagaswaram, which became the special instrument of the temples in the Tamil country with the development of Agamas, was possibly either of Naga origin or introduced by the Nagas as a unique sound-amplifying wind instrument.[73]

In addition to education in vocal music, education in instrumental music, involving the use of a variety of musical instruments was provided by teachers. The *Purananuru* mentions a type of Yal called Siru Yal. Drums known by the names Arip-parai, Anandarpparai, Ahuripparai, Orukataparai, Sallipparai, Sakkattupparai, Siruparai, Serupparai, Tadaripparai, Neidarparai, Porparai and Manap-parai are mentioned.[74] From the names, we can guess that each of these was for a specific occasion. These may not have required long periods of training for mastery: but there were whole communities pursuing the profession of drum-beaters of one category or another. Naturally, education for these persons was hereditary.

A number of other types of drums with names having no Parai suffix are also known to have been used. Among these were Udukkai, Yerruttol Murasam, Kalai Murasam, Tannumai, Baliperu Murasam, Maddalam and Mulavu.[75] The Tannumai needed a

lot of practice and in fact mastery over the intricacies of the musical science. The *Silappadikaram* mentions the important role of the Tannumai teacher in the following brief statement:[76]

"The master of the accompanying drum must be expert in the intricacies of Tala. He must be conversant with the three types of words, the familiar words of the language, words corrupted, and words incorporated from other languages so that the meaning of the sentiments expressed in a song may have reflection in the musical representation. He must help harmony between the vocal singing and the accompaniment on the Yal and the Kulal, so that the rendering is pleasing to the listener's ear. He must also compensate for the inadequacies of the other instruments. He must see that these instruments do not dominate where they should be subdued. He should also conceal possible gaps in a musical rendering to ensure a sustained good effect for the music. Above all, he must be master of the two main systems of Tala and the seven types of Tukku, probably the sub-divisions of a Tala."

The Tannumai had possibly variations in Mulavu and Maddalam. While the Tannumai was played for renderings of a softer type in which the volume was limited both by nature and purpose, the Maddalam and Mulavu were played along with instruments with large volume and range of audibility. The Maddalam is now the Davul accompanying Nagaswaram.

The Yal and the Kulal were the most popular instruments either played independently or used to accompany vocal music. The Yal was a stringed

instrument, possibly an ancestor of the Vina. Swami Vipulananda has succeeded admirably in collecting all the details about the ancient Yal and even in suggesting a model of the Yal as it might have looked, with the help of these details.[77] The Kulal was either the flute itself or an instrument similar to the flute. One does not know for certain whether this was horizontally held or vertically held though some are of the belief that the Kulal differed from the flute in its being played like the Nagaswaram or the bulging pipe of the snake-charmer. In Sanskrit the flute is called Venu which in its root sense is bamboo. Some type of a flute has characterised all pastoral regions in the world, and we cannot say for certain whether the Pullangulal of modern times has been in existence right from the Sangam times without any modification.

The Kulal Asiriyan, like the Yal Asiriyan was also a member of a distinct community purusing his occupation in a system of hereditary education. The Yal and the Kulal needed many years of practice for perfect handling and the artists playing both these instruments, no doubt, occupied a position not inferior to that of the vocalist. It appears that the Yal and Kulal artists were specialists, and constituted different communities from the folk musicians called the Panar who were also skilled in the use of these instruments.

2. PAINTING

There is no painting or drawing extant of the period prior to that of the Pallavas in the Tamil country. But there is not a single work in early Tamil literature which does not refer to painting.

Painting was known by the special name of Oviyam. The other term Cittiram was also alternatively employed.[78] There was a distinct community of painters called Oviyarkudi or the colony of painters.

The art of painting was developed as an allied one to architecture and interior decoration. Painters revelling in colours used other bases for the display of their talents than the walls of palaces and houses. Among the bases on which colour was used in decoration or in painting were clay and metallic utensils, cloth, including silken cloth, dolls and images, both of metal and of clay, wood including articles made of wood, and animals like elephants decorated on festive occasions. The ingredients for the making of the different colours and hues were, in all probability, available in the Tamil country itself. Vannam, possibly derived from the Sanskrit word Varnam signified colour. The earliest Tamil paintings extant, belonging roughly to the 6th or 7th century A. D. may be taken to indicate a continuity in a tradition in the realm of painting that had started many centuries earlier. The Sittannavasal caves enshrine the artistry of painters whose wizardry with the brush can be matched only by the lavishness of the colours which have not faded out even after 1400 or 1500 years. Possibly on account of the use of some perishable material before the 5th or the 6th century A. D. in painting, the paintings of the earliest period are not available in the Tamil country.

Painting was taught by great artist-teachers to their pupils in schools. The art was no doubt taught as a special accomplishment of dancing girls. But

that painting was a respectable art which those with the genius took to, is patent both from the numerous references to painters and decorators and from the mention of special treatises on painting. None of the treatises is extant. One of them going by the name of *Oviya Nul* was possibly the most popular textbook in painting.[79] From a description of this work contained in the commentary to the *Silappadikaram,* one would think that the work, obviously on painting and drawing, concerned itself mostly with the artistic side of human figures in the three postures of standing, sitting and lying.

Dancing girls studied painting for their own ornamentation and make-up. But the integration of painting with a number of handicrafts and sciences was remarkable. Painted clothing was among the fashions. Curtains with decoration were used by the upper classes of society. Murals decorated palaces and mansions, as also religious buildings like temples and meditation caves. Painted pottery was in use in every household. All this would indicate that the specialists in painting helped the development of the aesthetic side of industry. It would also indicate that proficiency in painting was required of almost every kind of craftsman and artisan. That is perhaps the reason why, along with the learning of the language, the learning of drawing and painting is given great importance in the old saying: 'Cittiramum kai palakkam, Sen Tamilum nappalakkam' (Good painting is the result of a good training of the hand; (speech in) good Tamil is the result of the training of the tongue.)

3. SCULPTURE

There was an indigenous school of sculpture in the Tamil country within the major category of architecture designated by the broad concept Sirpam.[80] Sometimes Sirpam itself is used as the synonym for sculpture. A Sirpi was an artist who could shape articles in one or more of the metals, or in one or more of basic materials like wood, ivory, stone and clay. The articles could either be reproductions of real ones or new creations. Even in the pre-imperial age, idolatry had becom a feature of Tamil religious life; but the number of important temples could be counted almost on the fingers. It is only in the *Silappadikaram* that we hear about the famous temples of Srirangam, Alagarkoil and Madurai. In the Sangam classics, more references are to the temples of Muruga than of any other god. The science of sculpture may have had a humble start confined to the perishable materials first, before it extended to permanent materials like stone and metal. The earliest stone image installed in the Tamil country is not known; but the installation of the idol of Kannaki made out of a Himalayan stone may symbolise the introduction of stone sculpture into the Tamil country.[81] But about this, it is wise to be overcautious.

As an ancillary of architecture, sculpture had a remarkable development. Secular architecture including palace architecture, afforded vast scope for sculptural work. The *Pattuppattu* hints at the possibility of there having existed regular treatises on sculpture. In the commentary to *Maduraikkanci* and *Nedunalvadai* the reference to a Nul in a context

where sculpturist is mentioned,, is elaborated as *Sirpa Nul.*[82].

4. POLITICAL EDUCATION AND EDUCATION IN ADMINISTRATION

No separate schools existed for training in political life or details of administration. The most learned among the citizens were chosen for the highest posts in the governmental set-up like those of ministers and judges. As regards the other grades of officers they were trained by their seniors in office, or by the father, wherever the office was hereditary. The administrative machinery was not so complicated as to require an elaborate bureaucratic system as in the later Cola period. The king was practically absolute in his powers and he needed a few advisers in addition to his *entourage*.

It is however interesting to be acquainted with the qualifications and qualities of good ministers. These were collected by many of the didactic writers of the past obviously to serve as guide-posts to ministerial incumbents from time to time. Of these writers Tiruvalluvar is the most authoritative, and here is his exposition of the qualifications and duties of ministers:[83]

1. The minister must be capable of determining the instrument of agency, the appropriate time, the *modus operandi* and the final execution of anything to be fulfilled.
2. Fearlessness, pedigree, capacity to save a situation, enlightened wisdom and sustained effort—these five, the competent minister possesses.

3. Effecting an estrangement among the allies of the enemy, protecting those enjoying his confidence, cementing strained friendships again—these the good minister is capable of.
4. The able minister carefully examines a contemplated course of action before following it; and if found feasible and appropriate, plans out its various techniques and does not hesitate to speak out his mind when he must.
5. He is fully conversant with what is according to Dharma. His pronouncements are full of wisdom; he is ever a man of action.
6. He combines a robust commonsense with wisdom gained from books. How could subtle designs avail against such a person?
7. Though he has learnt the different strategies and actions from books, he will not run counter to human nature in his action.
8. The minister considers it his duty to fearlessly and firmly give his advice to the king, even though the latter might resist it and would refuse to see sense.
9. A king is safer amidst seven hundred million enemies than with a minister who cannot think out and give the correct guidance and advice.
10. Ministers who have no inner capacity for carrying out a plan of action will always do less than they plan.

The specimens of political wisdom given above are intended to impress the fact that in the area of politics and administration, a certain body of knowledge had developed in the Tamil country, and it

constituted the guide-post to the persons in the different governmental positions, particularly at the highest level.

NOTES

1. J. Dewey discussing the nature of subject matter has this to say: "Organized subject matter represents the ripe fruitage of experiences like theirs, experiences involving the same world and powers and needs similar to theirs. It does not represent perfection or infallible wisdom; but it is the best at command to further new experiences which may, in some respects at least, surpass the achievements embodied in existing knowledge and works of art."

   "From the standpoint of the educator, in other words, the various studies represent working sources—available capital."

   Democracy and Education—p. 214; The Macmillan Company, New York 1955

2. Not all the areas of education have been considered in this study. The educational system, if we could so call it, of the ancient Tamils was highly complex after the Aryan interaction with the Tamils. The areas chosen from this complex set-up have a bearing only on what we call the secular type of education. An investigation into the development of the different systems of philosophy on the Tamil soil should indeed be interesting.

3. The categories have been evolved after a careful indexing of all the occupations mentioned in each one of the Sangam works.

4. It is a pity that only names of some of the textbooks are available today. The fate of the books and how long they were in use, it is not possible to say with any definiteness. These textbooks are referred to at the appropriate sections of this chapter.

5. Memorizing the contents of textbooks was integral to the learning process in ancient times. In Sanskrit it went by the name of Mananam and in Tamil Karravai ninaittal.

6. This division is found in the reputedly earliest work extant in Tamil, the *Tolkappiam*.

7. In the *Silappadikaram* there are situations presented in the dramatic form. There are portions of the epic which have high musical value and capable of being set to music.

8. This surmise is based on the story of Agastya, the first grammarian of Tamil, teaching grammar to his disciples, the most famous of whom was Tolkappianar. The learning of grammar required the help of a teacher. It is perhaps not far-fetched to say that teaching connoted to a large extent the teaching of grammar. The grammatical sutras had to be learnt and memorized under a teacher.

   It is perhaps this undue emphasis on grammar in the instructional scheme which Adi Sankara condemned when he sang the first words in *Bajagovindam*. "(worship God Govinda., It is not the grammatical rules that will save you, you fools" -*Nahi nahi rakshati dokrinj karanay*.

9. It is possible that in addition to these didactic works, some or all of the poetry of the age was expounded to eager aspirants for knowledge. If there had been a Tamil *Ramayanam* and a Tamil *Mahabharatham* in the Sangam age, they too might have constituted part of the material expounded.

10. Even during the Sangam age the influence of the Jains was not small. But during the Kalabhra interregnum preceding the Pallavan epoch, the Jains were very influential- and Jain scholarship was at the height of its glory.

    It is likely the Jain monasticism took a definite shape in the Tamil country and came to stay as a vital cultural and social factor for the next 300 or 400 years. The *Naladiyar*. along with other didactic works should have proved excellent text books for the internees in the monasteries, as also to the lay students in the Jain community.

    There should have been quite a number of textbooks on the different Arts and Sciences; and if later day commentaries of the Sangam works are to be considered authentic.

these textbooks in arts and sciences were expounded to selected students by experts.

11. The name Kuttanar might be a professional name rather than a proper name., Kuttu means dance, and Kuttan must have been an expert in the art of dancing.

12. The author of this work was the son of a famous teacher of Tamil. Sendanar is referred to as "Sendanar the son of the Tamil teacher." It is interesting that the son had taken to the profession of the father and distinguished himself as the author of a short but inspiring didactic work. That the *Tirukkural* had become a famous textbook before Sendanar's time and that Sendanar himself must have mastered the Kural are evident from the *Iniyavai Narpathu* in which many of the expressions and ideas reflect the influence of the Kural.

13. This work is interesting as emphasizing mental purity as of equal importance with physical fitness.

14. The main interest of the work lies in its being the first book on the subject of bodily care. Importance is given to the subject of diet. The author must have been an authority on dietetics. It may also be noted that for the first time mental hygiene is linked with physical well-being. "Acaram" is a beautiful term connoting physical and mental health.

15. This is the first great collection of Tamil proverbs in Tamil. The use of proverbs as a technique of instruction was well known to ancient Tamils.

16. This work treats of such diverse themes as beauty, womanhood, teacher-pupil relation, what is immortal, longevity, knowledge and renunciation. The author defines beauty. as the radiance resulting from learning (*kalvi ulagay alagu*) :"The beauty of learning is indeed true beauty." Referring to teachers. the author would require them to be persons of true integrity and moral character.

17. This is a small book of aphorisms. The idea of the author seems to be to present vicarious experience to growing learners. In modern educational theory educaion can be

indirect experience only when direct experience is not possible. But our ancients believed that the elders had a duty by the growing youngsters; and this was discharged by the elders leaving the legacy of their experience to the youngsters to enable their avoiding the process of trial and error in handling problems of life.

18. The author of this work was himself a great teacher and a genius as the suffix *medavi* might imply.

19. This Poigaiyar must have been different from Poigai Alwar.

20. For example, the little books under the authorship of a woman teacher by name Avvaiyar are sometimes considered the genuine products of the earliest period. But the Avvaiyar problem is an unsolved one, and it would be proper to leave these textbooks as out of the scope of our discussion even though their excellence cannot be disputed.

21. The popularity of the *Tirukkural* over the centuries can never be questioned. Ability to quote from the *Tirukkural* was considered a proof of the highest level scholarship. The *Tirukkural* must have become a separate course for students aspiring to become teachers of Tamil

22. Kanakku is some times derived from Ganitam (Sanskrit). *Gan* means to count. Ganitham is the name given to the Science of Numbers. But it is used in this sense very rarely in Tamil.

23. The Nedum Kanakku means the alphabet in general. It also means a big anthology. Mel Kanakku refers to major works while Kil Kanakku refers to minor works.

24. An old proverb. Also Tiruvalluvar:

    Ennenba yenai eluthenba. Ivvirendum
    Kannenba valu muyirku.

25. The science of measurement was called Alavai. Weighing in a balance was called Niruttal Alavai and measuring liquids was called Muhattal Alavai.

26. The Tamil number system must have been evolved long before the Arabic number system. *En* in its primary sense means number. An independent numeral system in Tamil

is suggested by the pure Tamil names given to most of the numbers.

SANSKRIT	TAMIL
1. Ekam	Onru
2. Dwayam	Irandu
3. Trayam	Moonru
4. Caturtham	Nangu
5. Pancamam	Aindhu

etc.

A comparison of Tamil and Sanskrit terms for numbers should suggest an independant development of the Tamil number system.

27. *Purananuru*—commentary on verse 229 where the authority of a *Ganita Nul* is invoked (p. 401 of U. V. Swaminatha Iyer, 1963 edition)

28. For instance verse No. 229

29. *Purananuru*— verses 109, 129, 270, and 397.

30. The term Ganiyan seems to have been used to refer to an expert in Mathematics. But in its technical connotation it refers to an astronomer.

31. *The Purapporul Venba Malai* explains the term Ganiyan as one who makes predictions on the basis of astronomical claculations. (Vilaivellam Kanni Uraippon Gani—cf. verse 174)

32. Ganiyan Pungunran must have been a great teacher of astronomy in his time. He belonged to the place called Pungunram in the Ramnad district. This astronomer poet has becrme immortal by statements whose validity is eternal. " Yathum Ure Yavarum Kelir" (Every place is my place, all persons are my next of kin)"

33. *Purananuru*—verse 229

34. Avur Mulam Kilar composed verses on both aham and puram themes. Sometimes both these names are taken to refer to the same person.

35. The *Pattinappalai* and the *Silappadikaram* contain descriptions of the layout of the city of Puhar, its architecture and engineering works. Likewise Madurai is described in works like *Maduraikanci*.

36. Uraiyur was the alternate capital of the early Colas. It became the only capital after the submerging of Puhar in the kadal kol (sea) devastation.

37. *Silappadikaram* refers to the brisk trade between the Tamil country and other lands.

cf: *Maduraikkandam*, Urkan Kathai, ll. 107 - 109 (U. V. Swaminatha Iyer 1960 edition)

38. *Ahananuru* - verses 102, 202

39. cf : The Malepadu plates of Punyakumara
E. I. VOL IX No. 35 ll. 3 to 5
Kavera - tanaya - Veloelan - ghana - prasamana - ayakarimah ....Karikalasya.

40. See the *Pattinappalai* for a detailed account of the activity around the harbour in Kavirippumpattinam.

41. Ayurveda is a common name both in Sanskrit and Tamil for the Indian system of medicine.
Purananuru - 173

cf: The early literature, particularly the puram sources.

42. None of the Ayurvedic texts extant seems to be genuine either in respect of its antiquity or of its authorship. Most of the works are still in manuscript form in the Oriental Manuscripts library, Madras, and the Saraswathi Mahal, Tanjore. The author of this paper would consider all these Tamil treartises on Medicine as products of the last three or four centuries.

43. The work of Vakadacharya are lost to us.

44. Both these doctors set some of the *Paripadal* songs to music.

45. Teriyar a great doctor of the past is credited with having prepared an exhaustive list of herbs with their medicinal properties. There is no one today who can identify even a few of the herbs.

46. *Purananuru*-22, 100, 353

47. Reference to the valour and chivalry of the Maravar are found in many of the ancient Tamil works,eg. *Ahananuru* 35; *Aingurunuru* 352, *Purananuru* 31

48. U. V. Swaminatha Iyer refers to this work in his *Sangattamilum Pirkalattamilum*, p. 149

49. *Tirukkural-Kulal Inidhu Yal Inidhu*

50. *Paripadal*-10. 1. 24

51. The *Silappadikaram* and the *Pattinappalai* mention these halls: Also the *Manimekalai*- 11: 13, V: 9

52. Manram is mentioned in most of the ten poems of the *Pattupattu*.

53. *Silappadikaram* - Puharkandam, Indiravila Edutta Kathai-l. 110

54. *Silappadikaram* and *Pattinapalai*.

55. *Maduraikkanci*.

56. *Silappadikaram* - The whole of the Arangerru Kathai is a treatise on dance and music.

57. The *Paripadal* contains many of the concepts of Tamil music.

58. We have no instance of a co-educational music school or a teacher teaching men and women at the same time.

59. *Silappadikaram* - Arankerru Kathai-Commentary

60. *Ibid*.

61. The *Paripadal* illustrates these types.

62. *Silappadikaram* Arankerru Kathai.

63. This tradition is not sustainable historically.

64. Some of these names are in pure Tamil and others in Sanskrit. It is likely that these cover the periods before and after the Aryan impact.

65. U. V. Swaminatha Iyer believes that the commentary is lost.

66. The Kanal Vari, in my opinion, is the meeting of the indigenous system of music and whatever element of the north Indian system that had been introduced by then. Perhaps it is the last evidence in respect of any aspect of the indigenous system of music. Here is an instance of the indigenous and the exotic layers of Tamil culture co-existing.

67. The fact that Parimel Alagar could salvage only twenty odd songs may show that the *Paripadal* had lost currency among the masses not very long after the period of its compilation.

68. Each one of these composers shows uniqueness in his composition, and the smooth uninterrupted flow of music is patent in the compositions.

69. These musicologists specialized in setting to music great musical compositions.

70. The term Gandharam has come to stay in Karnatic music.

71. When Tamil Nadu became the meeting place of foreigners the Tamilians did not hesitate to enrich their musical system with ideas from other musical systems. That was how eventually the Karnatic music system was evolved.

72. This instrument is used during worship hours in some temples. I have seen it used in Chidambaram.

73. Sometimes the instrument is called Nadaswaram. The combination of Nada (sound) and Swara (note) does not seem to be happy.

74. *Silappadikaram* Arangerru Kathai

75. *Ibid*.

76. *Ibid*

77. *Yal Nul* by Swami Vipulanandaji

78. *Manimekalai*: III : 168. V : 11. XIX : 6

79. This work is mentioned in the commentary to the *Silappadikaram*, Venir Kathai: p. 230. U. V. Swaminatha Iyer edition (1960)

80. *Silappadikaram*, Pathiham l. 58
Indravila Edutta-Kathai-l. 30, 32.

81. *Silappadikaram* Nadukan Kathai.

82. *Pattuppattu* 1961 Edition, U. V. S. Iyer, p. 414.

83. Only a few couplets have been presented by way of illustration.

Ancient works referred to in this article

1. Acarakkovai
ஆசாரக்கோவை

2. Bharata senapatiyam
பரத சேனாபதீயம்

3. Ciru Pancamulam
சிறு பஞ்சமூலம்

4. En Nul
எண் நூல்

5. En Suvadi
எண் சுவடி

6. Ganita Nul
கணித நூல்

7. Indrakaliyam
இந்திரகாளியம்

8. Iniyadu Narpadu
இனியது நாற்பது

9. Inna Narpadu
இன்னா நாற்பது

10. Isai Nunukkam
இசை நுணுக்கம்

11. Kainilai
கைநிலை

12. Kar Narpadu
கார் நாற்பது

13. Kilkanakku
கீழ்க் கணக்கு

14. Maduraikkanci
மதுரைக்காஞ்சி

15. Mahabharatha
மகாபாரதம்

16. Mudumolikkanci
முதுமொழிக் காஞ்சி

17. Naladiar
நாலடியார்

18. Nedum Kanakku
நெடுங்கணக்கு

19. Nedunalvadai
நெடுநல்வாடை

20. Oviya Nul
ஓவிய நூல்

21. Palamoli Nanuru
பழமொழி நானூறு

22. Pancamarabu
பஞ்சமரபு

23. Paripadal
பரிபாடல்

24. Pattinappalai
பட்டினப்பாலை

25. Pattuppattu
பத்துப்பாட்டு
26. Perumkuruku
பெரும்குருகு
27. Perunarai
பெருநாரை
28. Pura Nanuru
புறநானூறு
29. Ramayana
இராமயணம்
30. Silappadikaram
சிலப்பதிகாரம்
31. Sirpa Nul
சிற்ப நூல்
32. Sirupancamulam
சிறுபஞ்சமூலம்
33. Tevaram
தேவாரம்
34. Tirukadukam
திரிகடுகம்
35. Tirukkural
திருக்குறள்
36. Vakadam
வாகடம்
37. Yeladi
ஏலாதி
38. Yanai Nul
யானை நூல்

Other names and concepts brought up in this essay

Agastya
அகஸ்தியர்

Agama
ஆகமம்

Ahuripparai
ஆகுரிப்பறை

Anandapparai
ஆனந்தப்பறை

Aram
அறம்

Arattin Mandiya Marappor Vendar
அறத்தின் மண்டிய மறப்போர் வேந்தர்

Arundati
அருந்ததி

Asan
ஆசான்

Asiriyan
ஆசிரியன்

Asiriyan Nallanduvanar
ஆசிரியன் நல்லந்துவனார்

Ayurveda
ஆயுர்வேதம்

Baliperu Murasam
பலிபெறு முரசம்

Cittirai
சித்திரை

Cittiramum Kaipalakkam Sen Tamilum Nappalakkam
சித்திரமும் கைப்பழக்கம் செந்தமிழும் நாப்பழக்கம்

Cittiram
சித்திரம்

Cola
சோழர்

Davul
தவுல்

Ennum eluttum
Kan enattahum
எண்ணும் எழுத்தும்
கண் எனத் தகும்

Ganiyan Pungunranar
கணியன் பூங்குன்றனார்

Griham
கிரஹம்

Gurukula
குருகுலம்

Ilam Peru Valudiar
இளம் பெருவழுதியார்

Inbam
இன்பம்

Iravu
இரவு

Isai
இசை

Isai Alavu
இசை அளவு

Isai Nirai
இசை நிறை

Isai Pattu
இசைப் பாட்டு

Iyal
இயல்

Kaduvan Ila Veyinyar
கடுவன் இளவெயினார்

Kalai Murasam
கலை முரசம்

Kali
கலி

Kambodi
காம்போதி

Kannaki
கண்ணகி

Kanakkar
கணக்கர்

Karikala
கரிகாலன்

Karumpillai Butanar
கரும்பிள்ளை பூதனார்

Kaviri
காவிரி

Kavirippumpattinam
காவிரிப்பூம்பட்டினம்

Kesavanar
கேசவனார்

Kirandaiyar
கிராந்தையார்

Kol
கொள் (கோள்)

Kollutal
கொள்ளுதல்

Kudalurkilar
கூடலூர்க்கிழார்

Kulal
குழல்

Kunram Butanar
குன்றம் பூதனார்

Layam
லயம்

Maddalam
மத்தளம்

Madurai
மதுரை

Maiyodak kovanar
மையோடக் கோவனார்

Malava raga
மாளவ ராகம்

Manapparai
மணப்பாறை

Mandapam
மண்டபம்

Manram
மன்றம்

Kannanaganar
கண்ணநாகனுர்
Kannanar
கண்ணனுர்
Mantra
மந்திரம்
Marai
மறை
Maravar
மறவர்
Marundu
மருந்து
Maruttuvan Damodaranar
மருத்துவன் தாமோதரனுர்
Maruttuvan Nallaccutanar
மருத்துவன் நல்லச்சுதனுர்
Maruttuva Nulon
மருத்துவ நூலோன்
Maruttuvan
மருத்துவன்
Midarruppadal
மிடற்றுப்பாடல்
Midarruppasumpun
மிடற்றுப்பசும்புண்
Min
மின் (மீன்)
Mridangam
மிருதங்கம்
Mulavu
முழவு
Murasam
முரசம்
Naganar
நாகனுர்
Naga
நாகர்
Nagaswaram
நாகஸ்வரம்

Nallaccutanar
நல்லச்சுதனுர்
Nallaluciyar
நல்லழுசியார்
Nalleluniyar
நல்லெழுனியார்
Nalvaludiyar
நல்வழுதியார்
Nannaganar
நன்நாகனுர்
Natakam
நாடகம்
Neidarpparai
நெய்தற்பறை
Niram
நிறம்
Noi
நோய்
Nyayiru
ஞாயிறு
Orukatapparai
ஒருகடப்பறை
Pahal
பகல்
Pallava
பல்லவர்
Pan
பண்
Panguni
பங்குனி
Panjikkalayappun
பஞ்சிக்கலயப்புண்
Pannutal
பண்ணுதல்
Parimel Alagar
பரிமேல் அழகர்
Pattu
பாட்டு

Pettanaganar
பெட்டநாகனுர்
Pittamattar
பித்தாமத்தர்
Porpparai
போர்ப்பறை
Porul
பொருள்
Puhar
புகார்
Pullangulal
புல்லாங்குழல்
Pun Valalai Vaya Noi
புண் வழலை வாய நோய்
Ragam
ராகம்
Sakkattupparai
சாக்காட்டுப்பறை
Sallipparai
சல்லிப்பறை
Sangitam
சங்கீதம்
Serupparai
சேருபறை
Sevvai
செவ்வாய்
Siddha
சித்தர்
Sindhu Bairavi
சிந்துபைரவி
Sirpa Nul
சிற்ப நூல்
Siruparai
சிறுபறை
Suddha Maddalam
சுத்த மத்தளம்
Taccar
தச்சர்

Tadarripparai
தடாரிப்பறை
Talam
தாளம்
Tannumai
தண்ணுமை
Tingal
திங்கள்
Tondi
தொண்டி
Tukku
தூக்கு
Udukkai
உடுக்கை
Urai
உறை
Uraiyur
உறையூர்
Vada Min
வடமீன்
Vanji
வஞ்சி
Vannam
வண்ணம்
Velli
வெள்ளி
Venba
வெண்பா
Vidu
வீடு
Yal
யாழ்
Yehhu
எஃகு
Yerruttol Murasam
ஏற்றுத்தோல் முரசம்

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